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EXAMINER	
CHIEM, DINH D	

ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,421	BERMEL ET AL.	
	Examiner	Art Unit	
	Erin D. Chiem	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,12,13,27,32,33,35 and 38* is/are pending in the application.

4a) Of the above claim(s) *8-11,14-26,28-34,36 and 37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,12,13,27,32,33,35 and 38* is/are rejected.

7)☒ Claim(s) *33,35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/13/04 12/10/04 9*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse in the reply filed on 06 June 2005 is acknowledged. The traversal is not found persuasive because the Examiner cannot find any argument in the filed election. Currently, claims 1-7, 12, 13, 27, 32, 33, 35 and 38 are currently pending and claims 8-11, 14-26, 28-34, 36 and 37 are withdrawn from consideration.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claims 33 and 35 are objected to because of the following informalities: The value 50% has no reference. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's acknowledged prior art (Background of Invention) in view of Arney et al. (US Patent 5,808,781).

Regarding claim 1-3, and 7, the Applicant's acknowledged prior art (Figure 1, Background of Invention page 1, lines 24-31) discloses an optical switch film between at least two plates and having an electrical bias between the at least two plates.

However, Applicant's acknowledged prior art does not disclose the optical switching film is porous and the porous film includes microvoids formed in the porous film such that that the microvoids are continuous airspaces from a surface of the porous film to an opposing surface of the porous film. Nor does the prior arts teach having minimal pressure differential in the region of the space between the porous film and the at least two plates.

Arney teaches in Figure 1 and 14 a movable film 15 formed on a substrate having pores 14. From Figure 1, the pores are shown to be microvoids formed in the porous film, such that the microvoids are continuous airspaces from a surface of the porous film to an opposing surface of the porous film. Furthermore, Arney teaches using a gas pump to regulate the gas pressure between the switching film and the substrate through which the movable film moves to vary the optimizing damping (col. 6, lines 13 – 35). Arney controls the pressure to be approximately one atmosphere, which is an acceptable value to one of ordinary skill in the art to be equivalent to 760 Torr.

Since the Applicant's acknowledged prior arts in and Arney are all from the same field of endeavor, the purpose disclosed by Arney would have been recognized in the pertinent art of the Applicant's acknowledged prior arts.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a porous film on the movable optical switch instead of the non-porous film taught by the Applicant's acknowledged prior arts. The motivation for employing a

porous film is for providing better haze with the porous film versus a non-porous film. Furthermore, the pores allow dampening control when the switch film moves. For the similar motivation, the gas pump is a mechanism to regulate the pressure through the holes and pressure is a controlling dampening factor.

Regarding claim 4, the Applicant's acknowledged prior art in view of Arney teaches an optical switch film between at least two plates and having an electrical bias between the at least two plates, wherein the optical switching film comprises a porous film.

However, the applicant's acknowledged prior art in view of Arney do not teach the optical switching film operates as a switch at less than 100 volts. The amount of voltage applied can vary based on the type of movable film used, the pore size and spacings. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select discrete values the voltage applied for the purpose of selecting a preferred optimum setting since it is only a routine experimentation to discover the optimum discreet voltage value required to operate as a switch.

Claims 5, 6 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's acknowledged prior art in view of Arney as applied to claims 1-4 and 7 above, and further in view of Furukawa et al. (US Patent 5,238,636).

The Applicant's acknowledged prior arts in view of Arney discloses an optical switch film between at least two plates and having an electrical bias between the at least two plates, wherein the optical switching film comprises a porous film.

However, the Applicant's acknowledged prior arts in view of Arney do not disclose employing the method of phase inversion to form the microvoids in the porous film.

Furukawa discloses controlling the porosity in the porous film by controlling the forming microvoids according to phase inversion in the porous film (col. 3, line 61- col. 3, line 23). The phase inversion method allows the film to have uniform pore size; the pore formation is random on the film (col. 7, lines 10-20). The porous film formed by this method is mechanically stronger and is dimensionally stable.

Since the Applicant's acknowledged prior arts in view of Arney and Furukawa are all from the same field of endeavor, the purpose disclosed by Furukawa would have been recognized in the pertinent art of the Applicant's acknowledged prior arts in view of Arney.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the porous film onto the substrate instead of a solid film. **The motivation** for utilizing porous film made by phase inversion method is the mechanical strength and dimensional stability that the method provides as a product.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's acknowledged prior art in view of Arney as applied to claim 1 above, and further in view of Hayashi et al. (US Patent 6,808,654 B2).

The Applicant's acknowledged prior arts in view of Arney discloses an optical switch film between at least two plates and having an electrical bias between the at least two plates, wherein the optical switching film comprises a porous film.

However, the Applicant's acknowledged prior arts in view of Arney do not disclose light transmission greater than 50%.

Hayashi discloses a transparent conductive film having pores with light transmittance between 65% - 70% in the wavelength range of 400 – 800 nm (Figure 3A and Table 1-4) for the purpose of preventing reflection and decrease chromatic dispersion (col. 2, line 60-67) resulting in the bluish or reddish hue.

Since the Applicant's acknowledged prior arts in view of Arney and Hayashi are all from the same field of endeavor, the purpose disclosed by Hayashi would have been recognized in the pertinent art of the Applicant's acknowledged prior arts in view of Arney.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize fine metal powder and black powder mixture, as taught by Hayashi, as the composition to form the optical film. **The motivation** for utilizing the composition as taught by Hayashi is to prevent reflection and chromatic dispersion.

Claims 12-13, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's acknowledged prior arts in view of Nishimura et al. (US Patent 5,141,461).

Regarding claims 12 and 13, the Applicant's acknowledged prior arts (Figure 1, Background of Invention page 1, lines 24-31) discloses an optical switch film between at least two plates and having an electrical bias between the at least two plates.

However, the Applicant's acknowledged prior arts do not teach a multi-layered composite film formed simultaneously and coated on a releasable carrier substrate, wherein the multi-layered composite film includes at least one electrically conductive layer and at least two

plates having the multi-layered composite film between at least two plates that an optical switch is provided for the optical device.

Nishimura teaches a composite film comprising multi-layers and one of which is electrically conductive. The film is formed on a releasable carrier substrate as taught by Nishimura in the twelfth embodiment in column 17 and lines 29-49 for the purpose of easily transferring the composite film onto the face plate such a face plate of a cathode-ray tube.

Since the Applicant's acknowledged prior arts and Nishimura are all from the same field of endeavor, the purpose disclosed by Nishimura would have been recognized in the pertinent art of the Applicant's acknowledged prior arts.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilizing a multi-layered composite film formed on a releasable carrier substrate onto at least two plates such that an optical switch is provided for the optical device. **The motivation** for utilizing the multi-layers composite film, as taught by Nishimura, is the same purpose disclosed by Nishimura (col. 1, line 54- col. 2, line 44). The electrically conductive layer serves two main purposes; 1) for the obvious reason of conducting electricity and 2) is for releasing the built up gas to escape and prevent blistering to the layer. Following the electrically conductive layer is a carbon blackening film formed on the back of an aluminum film of the metal-backed layer for the purpose of absorbing the radiation heat and prevents thermal reflection from the aluminum surface which prevents the temperature of the mask from increasing. All of the aforementioned motivations for utilizing a composite layer are advantageous in an optical switch as well. Thus, one of ordinary skill in the art would desire

such characteristics in the films, which are, formed onto the surface and in turn forms the optical switch in the optical device.

Regarding claim 38, the method steps for fabricating an optical device is taught through the description of the device. Thus, the Applicant's acknowledged prior arts in view of Nishimura teach the limitations of claim 38.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's acknowledged prior arts in view of Nishimura as applied to claim 12 above, and further in view of Nishimura (US Patent 4,133,798), refers to as Nishimura2.

The Applicant's acknowledged prior arts in view of Nishimura teaches all of the above limitations of claim 2 except for the light transmittances of the multi-layered composite film is greater than 50%.

Nishimura2 teaches a composite film having additives of phenanthrene or anthracene; the observed visible light transmittance is greater than 50% for decreasing the thickness of the film layer (Table 1 and col. 4, line 17-32).

Since the Applicant's acknowledged prior arts in view of Nishimura and Nishimura2 are both from the same field of endeavor, the purpose disclosed by Nishimura2 would have been recognized in the pertinent art of the Applicant's acknowledged prior arts in view of Nishimura.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize composite films in which phenanthrene or anthracene additives are added to the copolymer used to produce the film during manufacturing process, thus resulting in a composite film having higher transmittance with low film thickness. **The motivation** for

utilizing such composite film, as taught by Nishimura2, in an optical device is the desired high transmittance, which in turns provide higher light transmitting efficiency in the optical switch.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kralik teaches a switchable mirrors and retarders based on imbibed nano-column films.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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